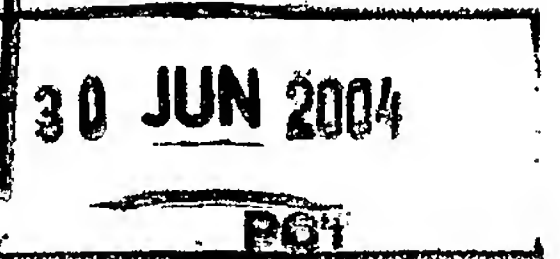
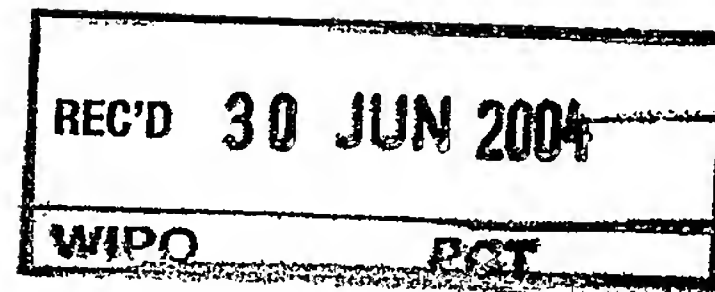


PCT/IB 04 / 02 001
(3 0. 06. 04)



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International Application No. } PCT/IB04/00522
Demande internationale n° }

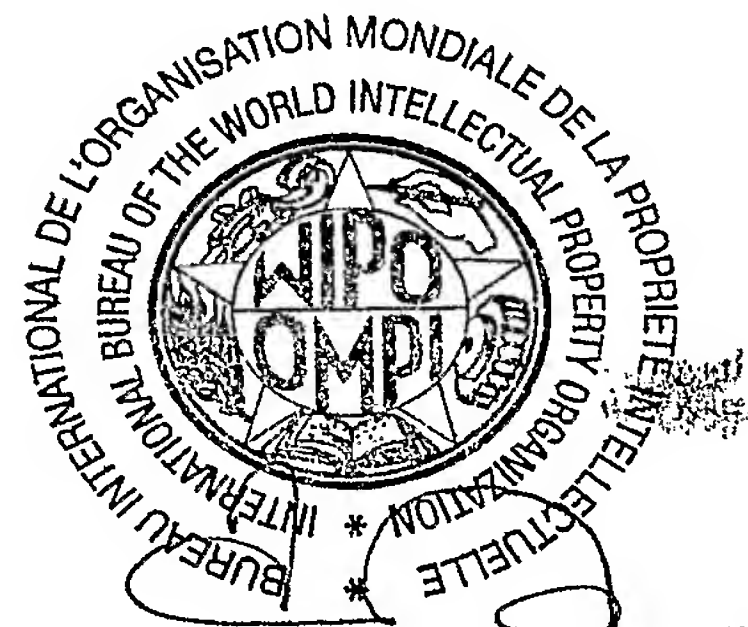
International Filing Date } 01 MARCH 2004
Date du dépôt international } (01.03.2004)

Geneva/Genève,
07 JULY 2004
(07.07.2004)

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REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

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PCT / IB 04 / 00522	
International Application No.	
01 MARCH 2004	01.03.04
International Filing Date	
INTERNATIONAL BUREAU OF WIPO PCT international Application	
Name of receiving Office and "PCT International Application"	
Applicant's or agent's file reference (if desired) (12 characters maximum)	52228 WO

Box No. I TITLE OF INVENTION	
Mobile game download to a cellular phone via a download module and a telephone line	
Box No. II APPLICANT <input type="checkbox"/> This person is also inventor	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	
Nokia Corporation Keilalahdentie 4 02150 Espoo Finland	
Telephone No.	
Facsimile No.	
Teleprinter No.	
Applicant's registration No. with the Office	
State (that is, country) of nationality:	State (that is, country) of residence:
Finland	Finland
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
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Bunte Björn Am Holtmannngarten 7 59425 Unna Germany	
This person is: <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
Applicant's registration No. with the Office	
State (that is, country) of nationality:	State (that is, country) of residence:
Germany	Germany
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
<input checked="" type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.	
Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE	
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	
<input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
Kurig, Thomas Becker, Kurig, Straus Bavariastrasse 7 D-80336 München	
Telephone No. 089-746 303 0	
Facsimile No. 089-746 303 11	
Teleprinter No.	
Agent's registration No. with the Office	
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.	

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Sheet No. ...2...

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Salminen Janne P. Lönrotinkatu 45 b 67 00180 Helsinki Finland		<input type="checkbox"/> applicant only	
		<input checked="" type="checkbox"/> applicant and inventor	
		<input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
Applicant's registration No. with the Office			
State (that is, country) of nationality: Finland		State (that is, country) of residence: Finland	
This person is applicant for the purposes of:		<input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)		This person is:	
Decker Peter Sibeliusstrasse 33 45772 Marl Germany		<input type="checkbox"/> applicant only	
		<input checked="" type="checkbox"/> applicant and inventor	
		<input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
Applicant's registration No. with the Office			
State (that is, country) of nationality: Germany		State (that is, country) of residence: Germany	
This person is applicant for the purposes of:		<input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)		This person is:	
Santamaki Harry Laivapojanakatu 3F 00180 Helsinki Finland		<input type="checkbox"/> applicant only	
		<input checked="" type="checkbox"/> applicant and inventor	
		<input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
Applicant's registration No. with the Office			
State (that is, country) of nationality: Finland		State (that is, country) of residence: Finland	
This person is applicant for the purposes of:		<input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)		This person is:	
Kansanaho Jukka Pellontaus 2 91800 Tyrvävä Finland		<input type="checkbox"/> applicant only	
		<input checked="" type="checkbox"/> applicant and inventor	
		<input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
Applicant's registration No. with the Office			
State (that is, country) of nationality: Finland		State (that is, country) of residence: Finland	
This person is applicant for the purposes of:		<input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	

☒ Further applicants and/or (further) inventors are indicated on another continuation sheet.

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Sheet No.3....

PCT/IB 04 / 00522

Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

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Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

Allahwerdi Nouri
Kellosaarenranta 1 A 10
00180 Helsinki
Finland

This person is:

- ☐ applicant only
☒ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:
Finland

State (that is, country) of residence:
Finland

This person is applicant
for the purposes of:

☐ all designated
States☐ all designated States except
the United States of America☒ the United States
of America only☐ the States indicated in
the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

Taskinen Pirkko
Haukatie 21
90550 Oulu
Finland

This person is:

- ☐ applicant only
☒ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:
Finland

State (that is, country) of residence:
Finland

This person is applicant
for the purposes of:

☐ all designated
States☐ all designated States except
the United States of America☒ the United States
of America only☐ the States indicated in
the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

Zillikens Frank
Kaldemorgenweg 27
45276 Essen
Germany

This person is:

- ☐ applicant only
☒ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:
Germany

State (that is, country) of residence:
Germany

This person is applicant
for the purposes of:

☐ all designated
States☐ all designated States except
the United States of America☒ the United States
of America only☐ the States indicated in
the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant
for the purposes of:

☐ all designated
States☐ all designated States except
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Further applicants and/or (further) inventors are indicated on another continuation sheet.

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Form PCT/RO/101 (continuation sheet) (January 2004)

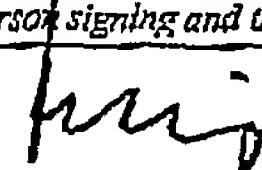
PCT/IB 0 4 / 0 0 5 2 2

Sheet No. 4

Box No. V DESIGNATIONS					
The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.					
However,					
<input type="checkbox"/> DE Germany is not designated for any kind of national protection					
<input type="checkbox"/> KR Republic of Korea is not designated for any kind of national protection					
<input type="checkbox"/> RU Russian Federation is not designated for any kind of national protection					
(The check-boxes above may be used to exclude (irrevocably) the designations concerned in order to avoid the ceasing of the effect, under the national law, of an earlier national application from which priority is claimed. See the Notes to Box No. V as to the consequences of such national law provisions in these and certain other States.)					
Box No. VI PRIORITY CLAIM					
The priority of the following earlier application(s) is hereby claimed:					
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:			
		national application: country or Member of WTO	regional application: regional Office	international application: receiving Office	
item (1)					
item (2)					
item (3)					
<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.					
The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified above as:					
<input type="checkbox"/> all items <input type="checkbox"/> item (1) <input type="checkbox"/> item (2) <input type="checkbox"/> item (3) <input type="checkbox"/> other, see Supplemental Box					
* Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)):					
Box No. VII INTERNATIONAL SEARCHING AUTHORITY					
Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):					
ISA / SE					
Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):					
Date (day/month/year)	Number	Country (or regional Office)			
Box No. VIII DECLARATIONS					
The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration):					Number of declarations
<input type="checkbox"/> Box No. VIII (i)	Declaration as to the identity of the inventor				:
<input type="checkbox"/> Box No. VIII (ii)	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent				:
<input type="checkbox"/> Box No. VIII (iii)	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application				:
<input type="checkbox"/> Box No. VIII (iv)	Declaration of inventorship (only for the purposes of the designation of the United States of America)				:
<input type="checkbox"/> Box No. VIII (v)	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty				:

PCT, 3 0 4 / 0 0 5 2 2

Sheet No.5....

Box No. IX CHECK LIST; LANGUAGE OF FILING		
<p>This international application contains:</p> <p>(a) in paper form, the following number of sheets:</p> <p>request (including declaration sheets) : 5</p> <p>description (excluding sequence listing and/or tables related thereto) : 11</p> <p>claims : 2</p> <p>abstract : 1</p> <p>drawings : 2</p> <p>Sub-total number of sheets : 21</p> <p>sequence listing : </p> <p>tables related thereto : </p> <p>(for both, actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (c) below)</p> <p>Total number of sheets : 21</p> <p>(b) <input type="checkbox"/> only in computer readable form (Section 801(a)(i))</p> <p>(i) <input type="checkbox"/> sequence listing</p> <p>(ii) <input type="checkbox"/> tables related thereto</p> <p>(c) <input type="checkbox"/> also in computer readable form (Section 801(a)(ii))</p> <p>(i) <input type="checkbox"/> sequence listing</p> <p>(ii) <input type="checkbox"/> tables related thereto</p> <p>Type and number of carriers (diskette, CD-ROM, CD-R or other) on which are contained the</p> <p><input type="checkbox"/> sequence listing:</p> <p><input type="checkbox"/> tables related thereto:</p> <p>(additional copies to be indicated under items 9(ii) and/or 10(ii), in right column)</p>	<p>This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item):</p> <p>1. <input checked="" type="checkbox"/> fee calculation sheet : 1</p> <p>2. <input type="checkbox"/> original separate power of attorney : </p> <p>3. <input type="checkbox"/> original general power of attorney : </p> <p>4. <input type="checkbox"/> copy of general power of attorney; reference number, if any: : </p> <p>5. <input type="checkbox"/> statement explaining lack of signature : </p> <p>6. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): : </p> <p>7. <input type="checkbox"/> translation of international application into (language): : </p> <p>8. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material : </p> <p>9. <input type="checkbox"/> sequence listing in computer readable form (indicate type and number of carriers)</p> <p>(i) <input type="checkbox"/> copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application) : </p> <p>(ii) <input type="checkbox"/> (only where check-box (b)(i) or (c)(i) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter : </p> <p>(iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the sequence listing mentioned in left column : </p> <p>10. <input type="checkbox"/> tables in computer readable form related to sequence listing (indicate type and number of carriers)</p> <p>(i) <input type="checkbox"/> copy submitted for the purposes of international search under Section 802(b-quater) only (and not as part of the international application) : </p> <p>(ii) <input type="checkbox"/> (only where check-box (b)(ii) or (c)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Section 802(b-quater) : </p> <p>(iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the tables mentioned in left column : </p> <p>11. <input type="checkbox"/> other (specify): : </p>	<p>Number of items</p>
Figure of the drawings which should accompany the abstract:	Language of filing of the international application:	English
<p>Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE</p> <p>Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).</p> <p></p> <p>Dr. Thomas Kurig (Patent Attorney)</p>		
For receiving Office use only		
1. Date of actual receipt of the purported international application:	01 MARCH 2004 (01.03.04)	2. Drawings:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		<input type="checkbox"/> received:
4. Date of timely receipt of the required corrections under PCT Article 11(2):		<input type="checkbox"/> not received:
5. International Searching Authority (if two or more are competent): ISA / SE	6. <input checked="" type="checkbox"/> Transmittal of search copy delayed until search fee is paid	
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Form PCT/RO/101 (last sheet) (January 2004)

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**Mobile game download to a cellular phone
via a download module and a telephone line**

5 The present invention relates to game applications on cellular phone devices. It also relates to a new possibility to reduce the communication load of mobile communication networks for downloading high quality game software to game-enabled cellular phone devices. This invention deals with server based game download services and their usage scenario. In this scenario a central server acts as a main distributor for game software to gaming-enabled
10 cellular phones. This invention proposes a novel generic game download module.

Presently, there are different kinds of mobile game devices available. There are e.g. the SEGA™ GAMEGEAR™, the ATARI™ LYNX™, and the commercially successful NINTENDO™ GAMEBOY™. All these devices provide a possibility to play electronic
15 games from an inserted mass memory device storing the game software.

Conventionally, the game devices are not able to download new game software from a server, as said devices require proprietary mass memory devices for storing the game software. These proprietary game software modules represent a significant obstacle for users to copy
20 and distribute contents of these hardware-contained games.

The game performance of game enabled cellular phones is dramatically increasing. For example, the Nokia N-Gage introduces a new way of gaming experience which requires new storage means for the game data. For the N-Gage, the game software technology is actually
25 the multi media card (MMC). For future, even more complex games, the required memory will be even increased to such an extent that the delivery of game content has to focus on new channels.

It is presently known to download e.g. ring tones as is disclosed in the document
30 EP 1246142. This document pertains to a method and a system for creating and presenting an individual audio information program for a mobile phone.

The other prior art solutions i.e. to deliver the game software as physical media, such as MMC or micro drive are actually not satisfying.

5 All the above approaches for mobile wireless multi-player gaming have in common that they are not fully suitable for the downloading of huge game application programs into cellular phone devices, as the data transfer load requires unreasonable download periods. This fact considerably reduces the game experience due to low computing/communicating power or low battery capacity that may not be sufficient to perform a complete download of a complex and extensive high-quality game software program.

10 It is also desirable to simplify the purchase of a game, and increase the flexibility for game publishers.

It is further desirable to provide a fast and cheap access to huge amounts of digitally coded data to cellular phone devices.

15 According to a first aspect of the present invention a method for a game software download from a server to a game-enabled cellular phone via a download module (or home gateway) and a telephone line is provided. The method comprises establishing a connection which is preferably local between a game-enabled cellular phone and said download module, establishing a telephone line based or non-cellular public switched telephone network
20 (PSTN) connection between said games server and said download module, and initiating a game software download from said games server to said game-enabled cellular phone.

The game software download is performed, according to the present invention from said server via said public switched telephone network connection and via said download module
25 or home gateway to said cellular phone.

The present invention provides a telephone line communication path to a cellular phone. That is, the present invention provides a non-mobile or non-cellular "data bypass" for the downloading of huge amounts of data. This enables a cheap, flexible and unusual approach to
30 fill a mobile cellular terminal with data at low costs.

In this basic version of the method, said connection between a game-enabled cellular phone and said download module or home gateway is established by said cellular phone e.g. upon a user input. The public switched telephone network connection between said games server and
35 said download module is also initiated in this basic version by the cellular phone controlling the download module.

An example embodiment of the method of the present invention further comprises establishing a connection between said game-enabled cellular phone and said games server via a public land mobile network (PLMN). This embodiment of the present invention provides in a simple way a possibility of a circle transfer or ring transfer. This feature further
5 allows any kind of information ring transfer from the server to the phone for example to initiate the download from the terminal to the phone, wherein the initiation is performed via the cell net and the download is performed via the telephone line.

Another benefit of the "doubled data connection" between the cellular phone resides in a
10 simplified charging option for the download by the telephone bill. Additionally, the server can be provided with a number of additional information such as the calling cellular phone number, and can be provided with an access to the serial number of the cellular terminal device e.g. for including a digital rights management (DRM). An elegant way to implement
15 DRM feature would be to use a serial number of a storage media. Thereby it can be assured that a user can use an unlimited number of backup copies that can be used only with a single specific mass storage. Thereby, a user can use a single mass storage device with different cellular phones, as long as the specific mass storage is operable. The serial number of the mass storage device may be transmitted via the cellular phone network to the server.

20 It is also possible to use another identification number of the cellular telephone, thereby enabling the distributor of the game download to prevent that a game application can be started on another terminal without a confirmation of the game provider.

The use of two different data connections can also be used to increase the data transmission
25 speed, if the game software is transferred simultaneously via said public switched telephone network connection (via said download module) and via said cellular phone network to said cellular phone.

In another example embodiment of the method of the present invention said connection
30 between said game-enabled cellular phone and said games server via a public land mobile network is used for authentication, authorization and/or payment procedures.

Another elegant way to implement DRM feature would be to use a serial number of the
35 telephone number stored in the subscriber identification member (SIM card) in the cellular phone. Thereby, it can be assured that a user has an unlimited access to the game. A user can use a single mass storage device even on different cellular phones, as long as the user also

changes his SIM card. The serial number (or the telephone number) of the SIM card may be transmitted via the cellular phone network to the server.

5 In yet another example embodiment of the method of the present invention said connection of said game-enabled cellular phone to said download module is initiated by said cellular phone. In this embodiment the telephone is basically the only active connection-initiating element.

10 In another example embodiment of the method of the present invention said setting up a public switched telephone network connection between said download module and said games server is initiated by said cellular phone. That is, the cellular phone dials the telephone line network number via the download module to connect to the server.

15 In yet another example embodiment of the method of the present invention said connection between said game-enabled cellular phone and said games server is initiated by said cellular phone. That is, the telephone uses the cellular phone network to connect to the server. This enables a two-path connection to perform e.g. authorization and authentication of the software for e.g. Digital Rights Management (DRM) applications. It is for example possible to transfer a keycode via the PLMN (from the phone to the server or vice versa) while the bulk software download is performed via the telephone line.

20 The two-path download can be used to prevent a multi-terminal download via a single telephone line. Thus, it can be prevented that an arbitrary number of cellular phones connected to a single telephone line in parallel receive a game program. This feature can be used to ensure that the game software is delivered to a single recipient only.

25 In another example embodiment of the method said establishing of said public switched telephone network connection between said games server and said download module is initiated by said games server. Thereby, the server can provide a kind of call back function to exploit e.g. a reduced telephone charge. This can reduce in the case of advertising actions the
30 charge for the download.

In yet another example embodiment of the method of the present invention said connection between said game-enabled cellular phone and said games server via a public land mobile network is initiated by said games server. This represents the inverse option to the above
35 described example embodiment, wherein the server initiates a cellular network call back.

In another example embodiment of the method of the present invention said downloaded game software is stored onto an exchangeable mass storage. By storing the downloaded game software onto an exchangeable mass memory the present invention provides a simple option to use many different games with a gaming device without any necessity to provide excessive storage capabilities in said cellular phone.

In yet another example embodiment of the method of the present invention said establishing of a wireless connection between said cellular phone and said download module or home gateway is performed according to a Bluetooth protocol. Another possible protocol is for example the wireless local area network (W-LAN) protocol. It is also possible to use a wired connectivity such as IEEE 1394 or the universal serial bus (USB).

In another example embodiment of the present invention said method further comprises transferring or selecting of setting data, (such as addresses, upload/download data rates, packet size, repetition rates, fragmentation, coding, scrambling...) from said game-enabled cellular phone to said download module. It is also possible to transfer or select the data transfer settings data from said game-enabled cellular phone to said server (e.g. via said download module or said PSTN). It is also possible to select or transfer the setting data from said server to said game-enabled cellular phone (e.g. via said download module or said PSTN).

According to yet another aspect of the invention, a software tool is provided comprising program code means for carrying out the method of the preceding description when said program product is run on a computer or a network device.

According to another aspect of the invention, a computer program product is provided comprising program code means stored on a computer readable medium or being downloadable from a communication network for carrying out the methods of the preceding description, when said program product is run on a computer or a network device. This can be embodied e.g. as a mass storage device for the use in a wireless cellular gaming device, comprising only an initialization engine and a game communication control engine.

According to another aspect of the present invention a download module or a game software gateway is provided. Said download module comprises a telephone line communication interface and a cellular phone communication interface. The download module represents an interface or gateway device to connect a game-enabled cellular phone (such as e.g. N-Gage) to a telephone line. The download module can be provided without a dedicated user interface.

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The application arranging the download of game software may run on the game cellular phone. This download application may use a broadband connection of the download module to download the game software. The download module can also be provided with an internal memory. The game can either be stored temporarily on the download module (e.g. a hard disk) or can directly be downloaded to the game enabled cellular phone. The technology for the connection between the home device and the game enabled cellular phone is again either wireless or wired.

In another example embodiment of the method of the present invention said download module further comprises a desktop docking station for a game-enabled cellular phone. The docking station can be provided with a charger unit. The docking station can also be provided with a storage module to backup e.g. downloaded games. By integrating a storage component in the docking station, a user can store currently not needed data such as an recently not used game software in said docking station, thereby reducing the memory requirements of the cellular phone.

According to another aspect of the present invention a game-enabled cellular phone device is provided. Said cellular phone comprises a built-in download module as described in the above sections. The present invention provides a cellular telephone that comprises also a conventional wired telephone module. The telephone can be used as a conventional phone if and when connected to a telephone line by a connection cable or can serve as a conventional cellular phone if not. The cable can be provided as e.g. a separate cable or as a built-in inertia-reel cellular phone-line cable. The cellular phone of the present invention can also provide a conventional "wired phone" functionality to enable voice transfer via the telephone line as an alternative to cellular voice communication.

A possible implementation is to connect the cellular phone and the conventional phone components in parallel to the low frequency voice band processing components.

According to another aspect of the present invention, the present invention provides a download system. Said download system comprises a download module, a game-enabled cellular phone and a game software download server. In the system said game-enabled cellular phone is connected to said download module, and said download module is connected via a "non-cellular" phone line to said game software download server. The system provides the functionality to perform a download as described in the preceding sections of the specification related to the method of the present invention.

In an example embodiment of the system of the present invention said game-enabled cellular phone is also connected via a cellular phone connection to said game software download server. The system can be implemented with a download device that is located at the home of the user and that is permanently connected to the telephone line. The download module may just serve as a gateway without an own dedicated user interface. Preferably, the download module has a broadband Internet connection such as a digital subscriber line (DSL), or an integrated services digital network (ISDN) or for example cable. The game software download server provides a "games download service". This server can provide the latest games on a trusted DRM platform to be downloaded.

In the following, the invention will be described in detail by referring to the enclosed drawings in which:

Figure 1 shows a basic embodiment of a download system module according to an embodiment of the present invention,

Figure 2 depicts a more sophisticated embodiment of a download system according to another embodiment of the present invention.

Figure 3 shows a basic embodiment of a download module according to an embodiment of the present invention,

Figure 4 shows a basic embodiment of a method of the present invention, and

Figure 5 depicts an embodiment of a cellular phone with a built-in download module according to an embodiment of the present invention.

Figure 1 shows a basic embodiment of a download system module according to an embodiment of the present invention. The download system comprises a download module 2, a game-enabled cellular phone 42 and a game-software download server 30. The download module 2 is connected to the game-enabled cellular phone 42 by a wireless or by a wired connection 14. The download module 2 is connected to the game-software download server 30 by a telephone line of conventional non-cellular phone network. The download module is connected to the telephone line e.g. by a modem (not shown).

The main data transfer load is expected to occur in download direction 12 from the server to the cellular phone. Only a minor data transfer load is expected to occur in upload direction

12'. To compensate differences in the data transfer rates of the game software and to further compensate transmission delays between the connections 14 and 12, an intermediate memory 5 can be provided in download direction. The intermediate memory 5 may be implemented as a data queue.

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In figure 1 the cellular phone further comprises an interchangeable mass storage device 46 serving as a memory device to enable a user to change the game software without any data exchange and download periods.

10 Figure 2 depicts a more sophisticated embodiment of a download system according to another embodiment of the present invention. In figure 2 the download system of figure 1 is extended by an additional cellular network connection from the cellular phone 42 to the game software download server 30. The cellular connection is provided by a cellular network connection 26 between the server 30 and the base station 20. The base station 20 is connected
15 via the antenna 22 and an air interface 24 to the cellular phone 42. This configuration provides an improved circular structure to enable improved digital rights management, as the server can always determine the exact number of actually receiving terminal devices.

Figure 3 shows a basic embodiment of a download module according to an embodiment of
20 the present invention. In figure 3 the generic download module 2 is embodied as a data download provider, to connect the cellular phone to a telephone line, therefore the term "module" or "gateway" is used to underline the mainly communicative implementation of the download module.

25 The implementation is based on two parts. A stand-alone download module 2 may also be provided with enough computational power and can also comprise a memory (not shown). The download module 2 is equipped at least with one wired interface to a telephone line and a wired (like universal serial bus (USB)) or wireless connection means like BT or W-LAN. The download module 2 is equipped with a telephone line communication component 8 and a
30 cellular phone communication component 10 for transferring game software data received from the telephone line to the cellular phone. Both engines require a data exchange protocol. The cellular phone communication component 10 may be connected to a transceiver 4 provided with an antenna 6. It is also possible to implement the transceiver only as a transmitter, in case that the ring communication is used for the game software download.

35

The protocol for the communication with the server can be any proprietary data download protocol. The protocol can be a standard e.g. Internet protocol designed to be optimized with

respect to download time by using a binary protocol. The proposed solution may be used for also accessing the Internet, but may also be implemented in connection with a conventional telephone line server. This implementation may simplify the download of certain game software to a game-enabled cellular phone to dial a predefined number.

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The telephone line communication component 8 may be implemented as a modem to connect e.g. the internet via the public switched telephone network (PSTN) to provide an interface to the cellular phone to forward game software and to provide an intermediate memory (or a data queue) for storing downloaded data.

10

The connection from the cellular phone to the download module can be implemented as a wireless connection (such as Bluetooth, W-LAN, or Infrared) or can be implemented as a wired connection such as USB (universal serial bus).

15

A memory (not shown in fig. 3) in the download module 2 can be used to queue the data in case that differences in the data transfer rates of the telephone line communication component 8 and the cellular phone communication component 10 occur. If it is possible to control the data transfer rates with a sufficient accuracy to be equal a memory may be economized, as the data is just directly forwarded.

20

User interface software (such as an Internet browser) for controlling the download procedure (selecting the game software, transfer of customer data, initiation of the download etc.) can be provided on the download module. The user interface software can also be located on the cellular phone. The cellular phone-based user interface software may be implemented as the standard browser for cellular browsing provided with a customized application program interface, to control the access to the download module.

25

Figure 4 shows a basic embodiment of the method according to an embodiment of the present invention. The depicted embodiment comprises the steps of setting up a connection between said game-enabled cellular telephone and said download module 50, followed by setting up a public switched telephone network connection between said game server and said download module 52, and downloading games software from said game server, via said telephone line connection and said download module to said game-enabled cellular telephone terminal 54. Though not explicitly mentioned terminating the download and closing the connections terminates the method.

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Figure 5 depicts an embodiment of a cellular phone 44 with a built-in download module 2 according to an embodiment of the present invention. The download module 2 can be the module of figure 3, wherein said transceiver 4 and the antenna 6 are replaced by a direct electric contact device to the cellular phone 44. That is, the present invention provides a cellular telephone 44 that comprises also a conventional wired modem module or even a complete telephone module 2 to enable wired and cellular voice telephony. The phone may be used as a conventional line modem or even as a conventional cellular phone when connected to a telephone line e.g. with a connection cable 18. The connection cable 18 can be provided as e.g. a separate cable or as a built-in inertia-reel cellular phone-telephone-line cable 18. The connection cable 18 is connected to the phone connector 16 providing a pluggable access to the PLTN 12.

A possible implementation is a cellular/line telephone wherein the cellular phone and the conventional phone components are connected in parallel to the low frequency voice band processing components.

A more sophisticated implementation of game-enabled integrated cell-line phone can be provided if the cell-line phone is capable of simultaneously operating the cellular network and the telephone line network.

The settings of the download module may be selectable (i.e. remotely controllable) by said game-enabled cellular phone or by said server. Thereby, the settings of the download module such as e.g. addresses, upload/download data rates, packet size, repeat rate, fragmentation, coding, scrambling...) can be selected from said game-enabled cellular phone or e.g. from said server. Thereby, it is possible to perform a game download without the need for a direct interaction of a user with the download module.

With the present invention it will be possible to use even complex games with a storage volume in the order of gigabytes in cellular phones, which may otherwise require the use of hard disk drives in the cellular game telephones for transferring game software from a hard disk into the game enabled cellular telephones storage for game software execution. With the present invention it will be possible to download even highly complex game software to a cellular telephone with justifiable costs, as the immense expense for the retail trade can be economized.

This application contains the description of implementations and embodiments of the present invention with the help of examples. It will be appreciated by a person skilled in the art that

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the present invention is not restricted to details of the embodiments presented above and that the invention can also be implemented in another form without deviating from the characteristics of the invention. The embodiments presented above should be considered illustrative, but not restricting. Thus the possibilities of implementing and using the invention are only restricted by the enclosed claims. Consequently various options of implementing the invention as determined by the claims, including equivalent implementations, also belong to the scope of the invention.

Claims

1. A method for the download of game software for a game-enabled cellular phone from a server to said game-enabled cellular phone via a download module and a telephone line, comprising:

- establishing a local connection between said game-enabled cellular phone and said download module,
- establishing a public switched telephone network connection between said server and said download module, and
- starting a game download from said server, via said public switched telephone network connection and said local connection through said download module to said game-enabled cellular phone.

2. Method according to claim 1 further comprising:

- establishing connection between said game-enabled cellular phone and said server via a public land mobile network.

3. Method according to claim 1 or 2 wherein said connection between said game-enabled cellular phone and said games server via a public land mobile network is used for authentication, authorization and/or payment procedures.

4. Method according to anyone of the claims 1 to 3, wherein said connection between said game-enabled cellular phone and said download module is established by said cellular phone.

5. Method according to anyone of the preceding claims, wherein said establishing of said public switched telephone network connection between said download module and said games server is initiated by said cellular phone.

6. Method according to anyone of the claims 1 to 5, wherein said connection between said game-enabled cellular phone and said games server is initiated by said cellular phone.

7. Method according to anyone of the claims 1 to 4 and 6, wherein said establishing of said public switched telephone network connection between said games server and said download module is initiated by said games server.

8. Method according to anyone of the claims 1 to 5 and 7, wherein said connection between said game-enabled cellular phone and said games server via a public land mobile network is initiated by said games server.

5 9. Method according to anyone of the claims, wherein said downloaded game software is stored into an interchangeable mass storage.

10 10. Method according to anyone of the preceding claims, wherein said setting up of a wireless connection between said cellular phone and said download module is performed according to the Bluetooth protocol.

11. Software tool comprising program code means stored on a computer readable medium for carrying out the method of anyone of claims 1 to 10 when said software tool is run on a computer or cellular phone device.

15 12. Computer program product comprising program code means stored on a computer readable medium for carrying out the method of anyone of claims 1 to 10 when said program product is run on a computer or cellular phone device.

20 13. Download module (2) that is characterized by a public land telephone line communication interface (8) and a communication interface to a cellular phone (10).

14. Download module (2) according to claim 13, wherein said download module (2) further comprises a docking station for a game-enabled cellular phone.

25 15. Game-enabled cellular phone device (44), characterized by a built-in download module (2) according to one of the claims 13 and 14.

30 16. Download system comprising a download module (2), a game-enabled cellular phone (42) and a game software download server (30), wherein said game-enabled cellular phone (42) is locally connected to said download module (2), and said download module (2) is connected via a telephone line to said game software download server (30).

35 17. Download system according to claim 16 wherein said game-enabled cellular phone (42) is also connected via a cellular phone connection to said game software download server (30).

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Abstract of the disclosure

5 The present invention relates to game applications on cellular phone devices. It also relates to a new possibility to reduce the communication load of mobile communication networks for downloading high quality game software to game-enabled cellular phone devices.

10 The present invention further relates to a method and a download device and a game enabled cellular telephone device for downloading game software for a game-enabled cellular phone from a server to said game-enabled cellular phone via a download module and a telephone line. The method of the invention is based on, establishing a local connection between said game-enabled cellular phone and said download module, establishing a public switched telephone network connection between said server and said download module, and starting a game download from said server, via said public switched telephone network connection and said local connection through said download module to said game-enabled cellular phone.

15

[(Fig 1)]^Δ

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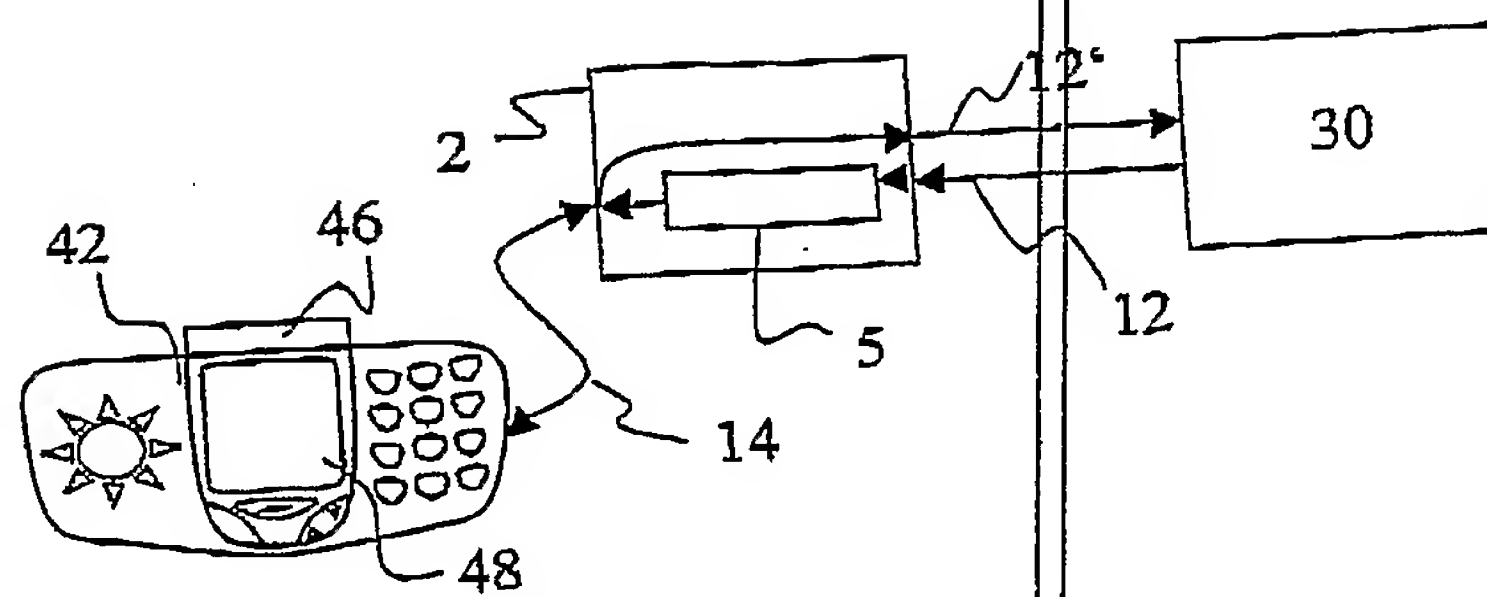


Fig. 1

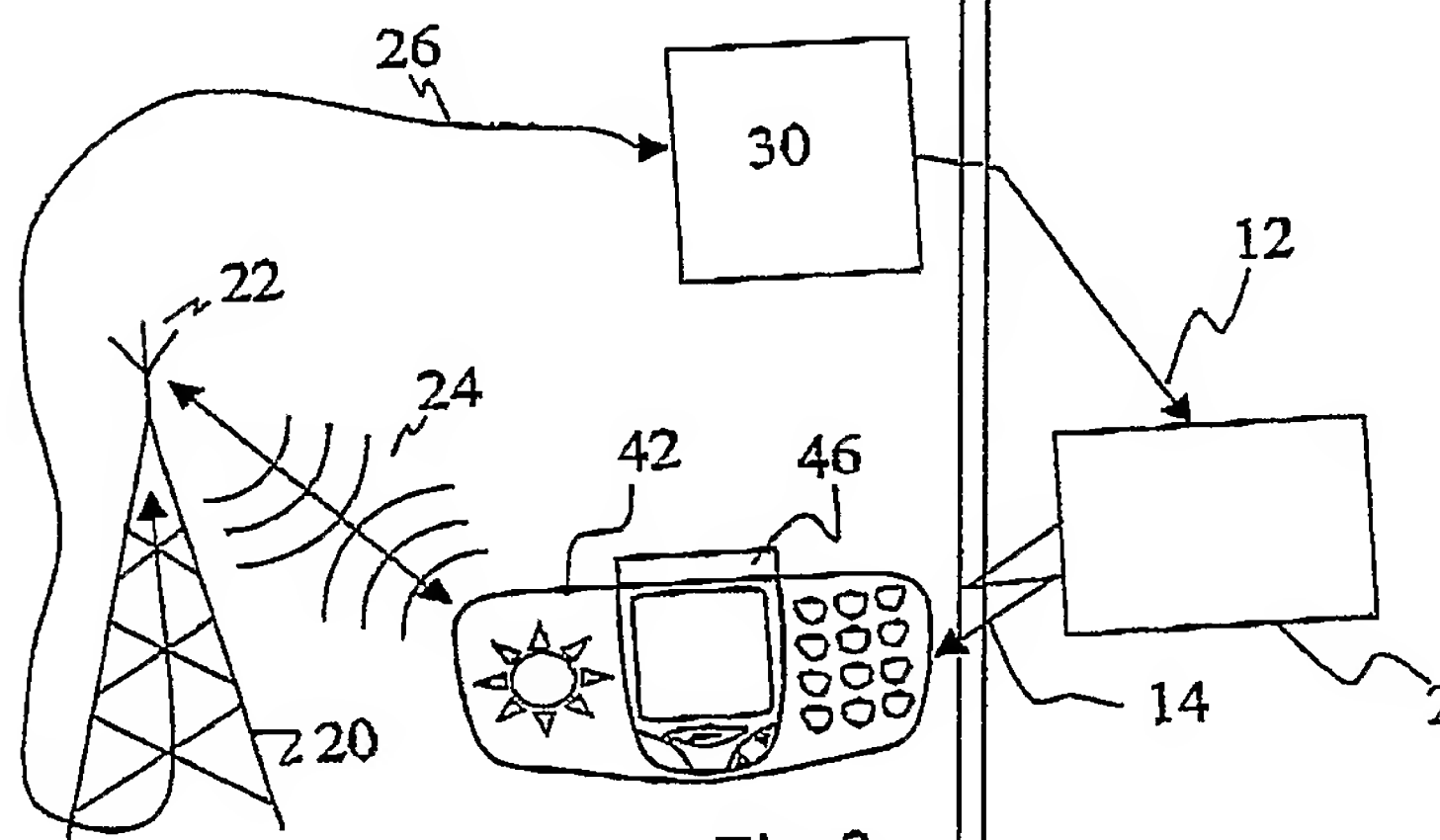


Fig. 2

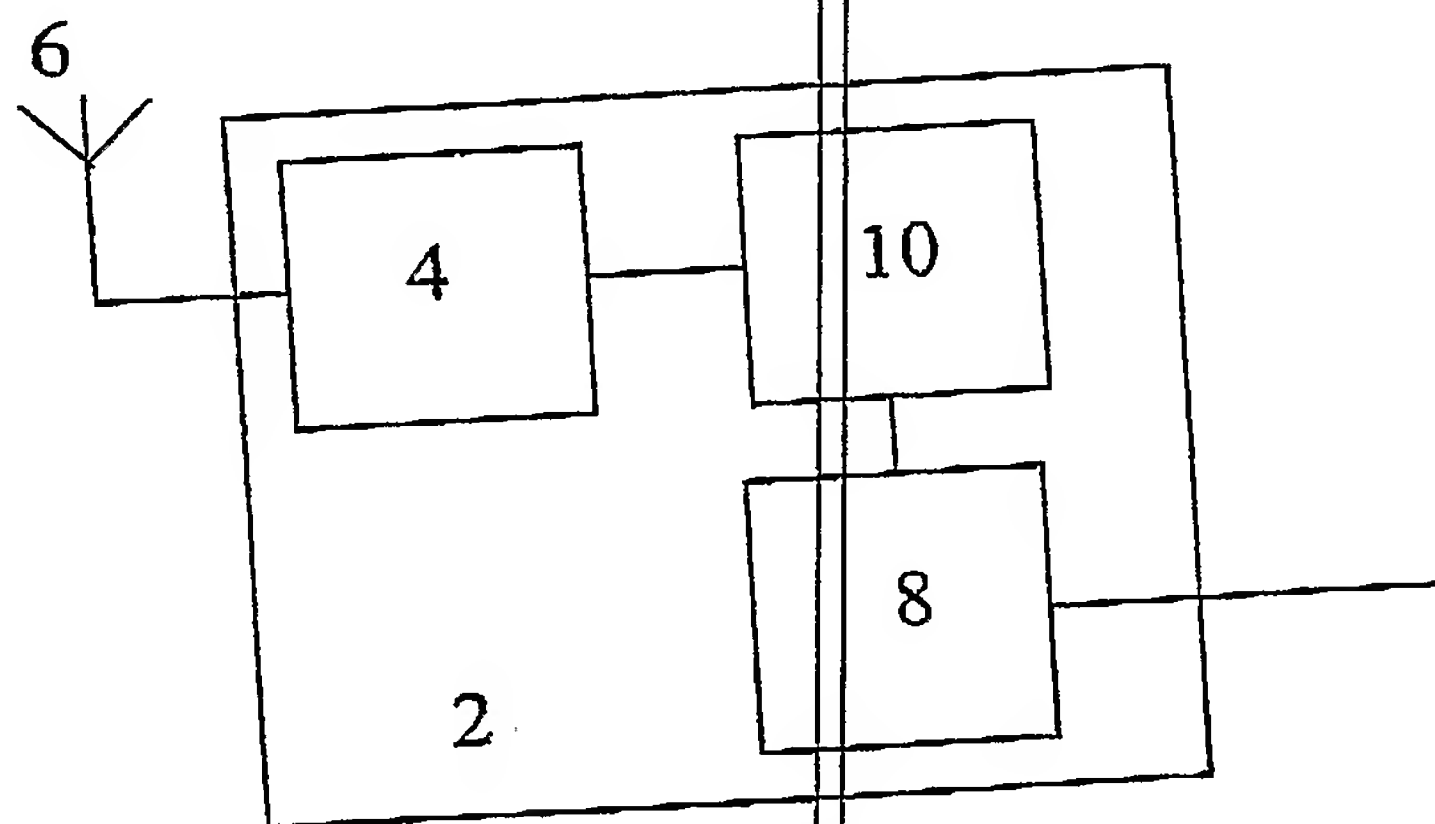


Fig. 3

PC: B 0 4 / 0 0 5 2 2

2/2

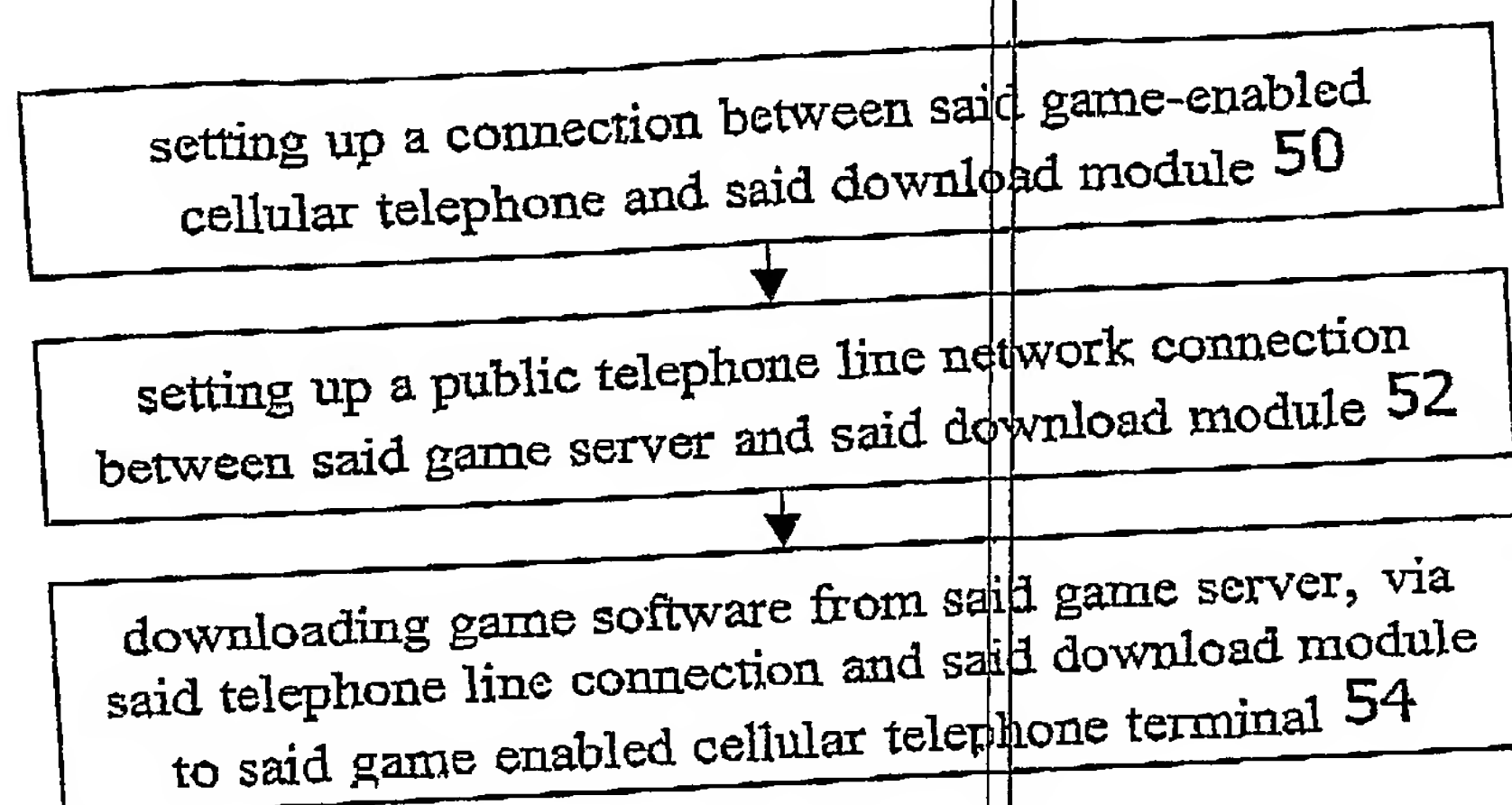


Fig. 4

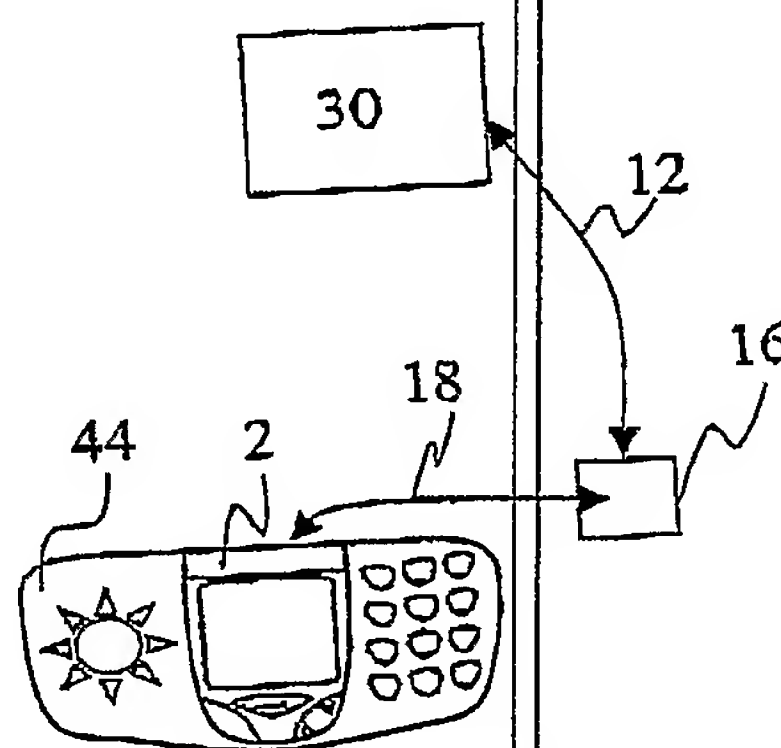


Fig. 5